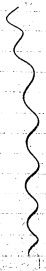
Notebook, N-04-11-02

November 2 1904–

New experiments started at Laboratory in our new test room to discover why nickel elements in some cases lose their amp Capacity after being in use and also to discover a remedy that is practical and commercial.
To investigate the cause or causes of swell and also why as high an ampere capacity cannot be got out of plates in 21% KOH as is obtained at times in 33% KOH.



(4000) Test Lug.

Mix. #4000.

The 100 ma. 6-4 must be run through press before using

$Ni(OH)_2$ large stuff from factory crushed and screened through 30 mesh screen without making any more fines than possible. 8 grams Reg fine grafete 2 grams. – 3 grams molasses – mixed by finger + thumb in Evaporating dish not fully covered to ascertain if its necessary to thoroughly cover it Mix dried on plate + powdered by finger to separate the particles stuck together. Then put in 3.9 of the dry mix + use plain disc – press 50 tonnes. Then put in Spirit-ola distilled water set on hot plate 36 hours to percolate sugar out Then put cup on [illegible] thick paper + thoroughly dry – Then press, with smooth die 100 at + Corrugate at 75. – Charge 100 / ate. 15 hours, using 2 [illegible] which have been chgd 24 hours new KOH, after each chg to [illegible] rate –

(4001)

Mix No 4001

Same as 2000 Except worked longer with fingers to get it thoroughly graphite covered, Flat probs 50 ohms, Chg+discharg curves as 4000

(4002)

4002

Same as 2000 but with 3½ grams molasses

Chg+discharg curves as 2000

(4003)

4003

Same as 2000 but with only 2½ grams molasses but worked longer to see if minimum molasses will answer

Chg+discharg curves as 2000

460 T, Volt vs time curve

It looks as if with higher 1 part Recovered to 1 part fine flake or proportions when that under 6 or 8 all virginal graphite Combo the Recovered to make body or surface Contact with the grown particles the Combo to Connect it Inside the Cup

4006 — as 6 or 8 shows that internal Resistance Can be had by not making Contacts all around the grown nuclei particles with the cells had five graphite two recovered — 4005 had 1 cc Recovered & Shows more Resistance due to Nucleophilic in Contacts to make Cup contact a mixture of Coarse graphite Recovered,

(4004)

4004
Same as 2000 but with Reg Coarse graphite,
Chg+ density same as 2000

(4005)

4005
Same as 2000 except Recovered graphite,
Chg+ density same as 2000

(4006)

4006
Same as 2000 except 1 gram Coarse 1 gram Recovered graphite.
Chg+ density same as 2000

* Looking under microscope with good light it is seen that all of the mixes from 2000 to 2009 were not worked by the hand long enough to cover all the particles, about 75% probably covered. next lot work longer + possibly ~~[illegible]~~ mixture made a little thicker so it will be more sticky. The only way to work the mix is by twisting action between thumb + first finger - Would require a peculiar shape to do this.

All the pockets from 2000 to 2009. were soaked 24 hours in distilled water it was seen that lots rust formed, there was 2 changes of distilled water finally one more change of coating made with one slick of KOH in it this 12 hours water clear, Total 36 hours

(4007)

4007
Same as 2000 except 7 grams
Ni OH_2 + 3 grams Coarse graphite
Chg+discharg same as 2000

(4008)

4008
Same as 2000. except 7 grams
Ni OH_2 + 3 grams fine graphite.
Chg+discharg same as 2000

(4009)

4009
Same as 2000 except 1½ grams
Coarse and 1½ fine graphite,
Chg+discharg same as 2000
* furnished above

4:15 am -

4006 is best of those preceding

All Nos from 2010 to 2037
wood on wood Saturday 3 am
signed (4003)

2010 – Centre 98 Edge 114+108

Same as 2006 – make 2 grids
with, 25 smooth dic pressure –
treat as 2000 x2 grids 100 pressure
smooth dic, before soaking –

Chip dried as same as 2038 21/1 Done

Centre 95 Edge 106+109
97 " 109+114

(4011)

4014 – Done

Same as 2001, work grafite so all
Covered under Micro – press 100
Corrugate 7/5 – Then soak 36 hours
warm Water + put on test, Then use
to determine if light pressure 24
hours soak, drying + clean Rig smooth
+ Cor dic as previously

Chip dried same as 2038 21/9

Done

9 = Centre 126 Edge 119+117
8 = " 108 " 120+116

2012 (4012)
Same as 2001, except 1½ 3 grms
sugar to evaporated down to thicker
+ more Nickel before using - + thoroughly
Cover, Smooth press 50 atm.

2013 Done (4013)
Same as 2001. Except ~~grind to~~
Nickel to be added ground to pass
20 mesh - Smooth press 50 at
Chg + discharg same as 2038 21%
A = Centre 101 Edge 114 110
B = " 99 " 108 113

2014 Done (4014)
Same as 2001 Except nickel
ground to pass 60 mesh
Flat press 50 at.
chg+discharg Same as 2038 21%
A = Centre 98 Edge 109 110
B = " 95 " 105 108

4015 Done

Same as 2001 Except 9 of Ni + 1 of fine graphite, well mixed to pass 4 mesh screen. Will not stick together. Will not stick to graphite. Molds + work hot. Flat press 50 atmos

Chg + discharg same as 2038 21/1

A Center 98 Edge 110 × 113
B " 98 " 110 × 113

4016 Done

Same as 2001 Except 6 nickel + 4 fine graphite flat press 50.

Chg + discharg same as 2038 21/1

A Center 94 Edge 105 × 109
B " 95 " 106 × 106

4017 Done

Same as 2001 Except all nickel. Passed through 100 mesh, 4 grms Molybden

Chg + discharg same as 2038 21/1

A Center 91 Edge 105 × 105
B " 92 " 103 × 107

4020 A 420 mah
4020 B 130 mah

Thes shows pressure too great
One pound up & the action on account
of Cup or annulling Covalent Pts in
the Corning Heat light, resume bad as 4019
gave 4/5 & duplicates same, Corsty prevented
flow ? ?

Thes shows Mica / silver Pad & Heat
value proves Impedance [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]
The drop was 3 hours later

2018
Same as 2001 ~~Except~~ Sugar molecule
of Molasses,

2019 Done
Same as 2001 except final press
smooth die, 150 Corrugating 100
Chg + density same as 2038 21 1/2
A/ Centre 96 Edge 107 x 103
B " 94 " 106 x 108

2020 Done
Same as 2001 Except final press
100 smooth die, 150 Corrugate,
Chg + density same as 2038 21 1/2
A Centre 103 Edge 112 x 108
B " 102 " 109 x 109

2021 Done
Same as 2001 but soaked in
Water on hot plate 48 hours.
Chg + density same as 2038 21 1/2
A Centre 99 Edge 107 11
B " 97 " 104 112

~~2022~~

Same as 2001 but Nickel cells through 20 mesh

4023

Same as 2001 except cups have brown side out.

~~4024~~ Lost

Same as 2001 except after dry to be forgot crushed with ~~[illegible]~~

9 mixed Molasses with Nickel first, but had put in 8 gms Extra Molasses Two too dry

Checked same as 2038
4 Cantor 192 Edge 105 V 101
8 " 97 " 108 V 111

4025

Same as 2001 but method of Molasses was Conc Cane Ammonia Syrup4 —

4 Cantor Edge
8 " "

This shows Error in Molasses
bad—

#026
Reg mix 312 in pockets plated
.005" thick

#027
Reg mix 312 in pockets plated
.005" thick burrs outside

#028
Same as 2001 in pockets plated
.005" thick —

~~#029~~

#029 Done
Same as 2001 except 4½ grams
Molasses thickened —
Chg'd dough same as 2038
21%

A center 90 edge 106 & 104
B " 92 " 108 & 110

* The one put in 33⅓ % run swelled, bond & gave poor amp Cap
Colonies one reversed in 33⅓ % 15" hours then put in 21 % run gave 6 76. to Volt & the swell on 3rd run less than 20
The only Explanation is that reversing in 33⅓ % takes something out of it & leaves the KOH & permits the Mix to flow - ordinarily the one run in 33 % should have shown high amp Capacity
Both had Malaxeurs

* 4032 — poor
Big Swell-

4030 Done
Same as 2001 Except all the Graphite screened out finer than 40 mesh
Chg + discharg Same as 2038 21% KOH
A Center 98 Edge 108 / 108
B " 100 " 110 / 114

4031 Done
Same as 2001 Except use Coarse graffiti all finer than passes through 30 mesh rejected, & grains Molasses
Chg + discharg Same as 2038 21% KOH
A Center 94 Edge 108 / 109
B " 94 " 103 / 107

4032 Done
Same as 2001 Run in 33⅓ % KOH
Chg + discharg Same as 2038
A Center 97 Edge 107 / 112
B " 101 " 110 / 117

4033 Done
Same as 2001 Run in 10% KOH.
Chg + discharg Same as 2038
A Center 96 Edge 109 / 106
B " 97 " 109 / 113

2037	2015
2036	2014
2035	2013
2034	2011
2033	2010
2032	
2031	Were finished
2030	3 am Thursday morning
2029	Stick Roff always put on
2021	at 12 o'clock changed
2020	water at 8 pm
2019	Changed water
2017	
2016	

all these went on
Wash Thursday morn
3 am

A Cutter 100 Edge 113 x 108
B " 99 " 111 x 110

2034 Zone
Same as 2001, Reversed ½ hdf
15 hours
before running in 21% —
chg ~~[illegible]~~
~~[illegible]~~
New KOH - Chg 1100 after 15 hours
then put with 1000 feet 10 hours 595 to V 5 ppm
therefore run 100 feet 10 hours 595 to V 5 ppm
2035 alone 543 " "
Same as 2001 Reversed half
15 hours 33⅓ 586 to V 5 ppm
572 to V " "
Chg + ducky - Same as 2034 Except
the 33⅓ — A Cutter 95 Edge 108 x 105
B " 98 " 109 x 109

2036 Zone
Same as 2001 Reversed half
15 hours in 5% 425 to V 5 ppm
425 to V 5 ppm
Same as 2034 Except the
5% A Cutter 96 Edge 109 x 108
B " 101 " 111 x 109

2037 Zone
Same as 2001 Reversed half 15 hours in ½ ½% KOH. 5 ppm
419 to V
394 to V
Chg + Ducky
Same as 2034 except the ½ ½% KOH
A Cutter 98 Edge 109 x 110
B " 99 " 114 x 108

Remarks 4039 to 4044 - all have been charged 24 hours

Center 96 Edge 110113
95 " 111112

A
B " Done

4039

Same as 2001 but with 4 grams Sugar - Graphite put in first with Sugar, after Graphite Coated [redacted] NiOH put in Works much better [redacted]
Coated -
worked during [redacted] corrected -
To be reversed hot in 5% KOH 50 milamps 24 hours. Then charged 100 rate 15 hours
Same as 2039 Done

4038 -

Same as 2001 but 4 grams Nickel-coated graphite + milfoam put in first + Work + Nickel put in afterwards
Cover it well - [redacted]
fine graph - 95% Coated
to be reversed hot in 5% KOH for 24 hours + then charged 100 rate 15 hours + discharged with 2 more previously Charged 24 hours
New KOH Then after charge 100 10/hours

A - Center 96 Edge 1171 109
B - " 94 " 1164 109

CD

#040 Done
Same as 2001 Except 4 grams
Molasses graphite / molasses
mixed together, press 100
plain die [illegible]
75 — fine graf

Chg to chg same as 2038
A Center 87 Edge 103 & 104
B " 96 " 105 & 106

#041 Done
~~Same as 2041 Except~~ 7 grammes Nickel 3
grammes fine graf. 4 molasses
Mix graphite & molasses ~~[illegible]~~ ferrite,
50 at smooth die dark —
after coined 100 smooth 75 —
Corrug —

Chg to chg Same as 2038
A Center 87 Edge 103 & 104
B " 96 " 105 & 110

CO

2042 – Disc

7 grams Nickel 3 grams Graphite, ~~4~~ 4 grams Aluminum Mix 4 pr. File Aluminum fine 100 Smooth Die 75 Corrug

Soak

Chg + dressing Same as 2038

A center 85 Edge 106 & 108
B " 90 " 102 & 103

Disc

2043 Same as 2042 but after soaking dry & ~~heat~~ Re corrugate 75 atmos,

Chg + dressing Same as 2038

A Center 85 Edge 107 & 107
B " 90 " 105 & 107

CO

4044 Done

4 arms Marked 3 arms fine, graphite 4 Mix the graphite medium forest, & then only press the stuff between fingers just twist enough to make the intimate mix with all Covering of nickel finely & not chromate graphite,
Did not twist but just gave a pressing shifting motion on bottom of dish just like our Mixer - It works fine covers well see very little green flakes are not broken

Chg to dosby Square as 2038

A Center 98 Sol'n 108 & 104
B " 92 " 109 & 109

CD 354 to V 2nd
354 "
335 "
348 "

4045 Dime

Loose pockets, pressed with Rubber, right one pocket not glow Red qu. by Rogers — No corrugating used or even with Corrugated but it was qui. loose not pressed at Vale — Pressure with Rubber was Regular pressure Uses gold not TGR —

4046 — Dirt

4 pockets from Gibbs. Hi
pleith, new outside pocket
put on ~~[illegible]~~ of Corrugated
75 out,

CO

1 pocket shows wear & change
that there is a resistance some where
also the other 3 shows slight
[illegible]
will come back to me only
300 to Vault. All looks as
if there was some Rust on the
surface of the pocket

Done

4047 Reg mix Reg pack Co.
3.2 mix bro — 100 mm South 75° Com
Reversed 15 hours at 100 ma
in 33% at 160 Faber.
Assembled with Reg 2 grams
+ put in 21% chlorate 2 15
hours, chicks yr 100,
Ave - cal - Cut 82 chgs 99 - 101

465 - 1st
479 2nd

4048 same as 4047

455 - 1st
470 2nd

4049 same as 4047

465 1st
481 2nd

Done

4050 Same as 4047

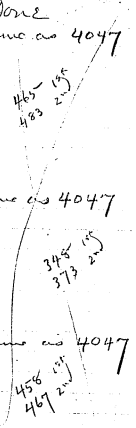
465 1st
483 2nd

4051 Same as 4047

345 1st
373 2nd

4052 Same as 4047

458 1st
469 2nd



Lone

4053. Reg mix Reg packets.
100 smooth pass 75 at Evening
Mix No — Reversed 30 Returns
in 33% at 160 Jacks
assemble with Reg 2 from
put in 21% Change 15 hours
+ discharge 100,
Average cal. day 88 - Eggs 84 - 101

347
367

4054 Same as 4053

344 104
345 2nd

4055 Same as 4053

446 15
476 3rd

Done

4056 Same as 4053

313 to V 155
325 " 5

4057 Same as 4053

330 to V 154
346 " 5

4058 Same as 4053

333 to V 154
352 " 5

~~4054 Same as 4046~~

	1	2	3	@ 500 4	5	6	
4060 F	517	535	529	358	375	522	521
E	523	535	525	417	383	S.C.	
D	521	518	530	358	333	527	
4060 C	539	534	543	458	367	532	
B	533	528	536	450	393	522	
A	522	515	532	367	375	508	

50 runs on Endurance.

					113	114
4060 F	538	508	483		500	478
E	543	510	483		525	492
D	522	508	492		508	461
4060 C	547	543	507		543	522
B	547	527	483		512	488
A	547	508	467		508	467

50 runs on Endurance.

Dms 11/11/04

4060 (a)

Reg Jacketa made 3.2 gmm. of 385 hitride put in reg plated cup (steel) with the cups formed 20 thou the perforations burrs are outside 150 lbs. mould & outside cup were reverse perforation.

Pressed at 100 lbs smooth [illegible] for 15 hrs at 1100 anneal for jacket & assemble with charged Fe & charge 15 hrs at 200 runs 100 unit 89 - edges 100-102

539 538 V 521 520 D 533 536 F 0 532 532 V 521 520 D 517 529

40.60 (b) unit 88 - edges 99-101 same as 4060 (a)

523 525 521 530

4060 (c) unit 88 - edges 100-101 same as 4060 (a)

4060 (d) unit 92 - edges 100-104 same as 4060(a) except not reversed but run reg.

4060 e unit 94 edges 112-102 same as 4060(d)

4060 f unit 87 edges 100-99 same as 4060(d),

@ 500

		1	2	3	4	5	6	
4061	C	518	533	529	479	491	527	52 runs
	B	540	545	541	496	508	533	on End.
	A	535	543	533	471	483	524	

		58	60	61	53 runs on Endurance	113	114
4061	C	585	547	534		544	515
	B	583	552	550		555	528
	A	573	547	533		533	523

#4061 (a) Done

Home Reg cup. Loaded with #385 Li mix 3.2 gum - Sprinkle some fine graphite on to lining the inside of the cup when loaded.

Run reg 4 charge & run with two 4.6 mg Fuse clx 200 run 100 after 3 misfires fuse out small indentation Center 86. Edge 98+102

4061 (b) Center 89 Edge 102+103

Same as 4061 (a)

4061 (c) Center 87 Edge 97+103

Same as 4061 (a)

518 1st
529 2nd

540 "
541 "

535
533

c

Dry Reverse + charge KOH –

4062C	386	312	300	277	145	158	
4062B	408	333	323	303			
4062A	236	173	153	138			
~~4062C~~	~~548~~	~~533~~	~~499~~	~~477~~	497		
	343	274	250	239			

145 to V to a rum after a Reverse + recharge showing reverse made it worse,

4062B –	157	160
" a	88	75
c	141	

Denver 83 Edge 93 + 95

4062 (a) 11/11/04

Some neg cups are loaded 20 or 30 to have a coating of HgO on inside of each cup.

Hanson will furnish some HgO paste which can be painted on with a brush + dried.

The cups are loaded with 3.2 gm #385 Hi. Oxide 200 mm 100

against 1 – 415 gm Fe S.

Some neg cups taken 2 at 570 rate + form endurance

4062 (b) Denver 86 Edge 98 + 102

Same as 4062 (a)

4062 (c) Denver 86 Edge 97 + 101

Same as 4062 (a)

Scrap

* The cups recessed ion rods in large jar (Reg) with rod + washers immersed went bad — Three done separately in small glass jars — the Either Something Coming Out of Excess of KOH, or glass surface, the strip, or the rod + washers that mixed have made the Regs go bad, the goodness had CP nickel wherein the Reg had ones had glazed strip.

Not Cupped never put to use

Note

Done * 4064, 4065 Use smallest grams that will hold them to get smallest amount KOH — Use pure Ni strip + dot inverse instead of cylinders

Reversed perforations cups

8 grms Ni Thro 30 mesh 2 grms fine graphite, 3 grms ~~sesqui~~ molybdenum

50 atmos 1st pressure soak 48 hours in water, warm on steam plate water made alkaline by KOH. Then dry and press 100 atmos 1st press + Corrugate 75. Reverse in 33% KOH. 15 hours Loosened then soak 6 hours in water Then assembled with 2 grms charge 15 hours at 200 + discharge at 100,

319 Cake Dec 106 Sig 122 + 124
4/4 Shark skin 10" " 121/24
Before soaking Center 104 Sig 123 + 125
4065 " 105 " 122+125
" 4064 93 " 107 + 126
" 4065 93 " 105 + 126

Made about 4 large number when wrong way up, mixed it very thoroughly so coned evenly as a green particle the graphite of Coarse broke up + was equivalent to using Recovered graphite + flake but not so good as mixing as first working 1/2 Recovered then when fully Covered add the fine flake + work it well but not so great as to break it up much

Done

4066 } Same as 4064- Except
4067 } Regular cups not reversed
3.9 Cake

Before cooking 4066 Centre 101 Edge 122+123
" " 4067 " 100 " 122+123

After drying 4066 } 105 122+123
" Cooking 4067 } 102 121+122
4066 } 95 105+107
4067 } 93 105+107

4068 } Same as 4064. Except.
4069 } 1 gram precovered grafite & 1 gram fine grafite. Recovered grafite put on Ni first.

3.9 cake

	Before soaking	Caliper	Center	Edge
After drying	4068	109		125+126
	4069	107		124+125
After final centrifuging	4068	97		108+109
	4069	95		104+108

Before soaking 4068 Center 106 Edge 126+126
" " 4069 " 104 " 123+125

Done

4070 } Same as 4064
4071 } Except 1 gram recovered graphite 1 gram fine graphite fine graphite put on first recovered graphite after crushed, 3.9 Cubic

Before soaking 4070 Centre 106 Edge 124/125
" " 4071 " 103 " 122/124
After Oxy. 4070 99 [illegible]
" " 4071 107 121/122
After Conc. 4070 94 107/108
4071 93 107/107

Done

4072 } same as 4064
4073 } But pressed 100 1st press + 75 at Corrugated before soaking - 3.9 Cats

Before soaking 4072 Centre 104 Edge 116 117
" " 4073 " 100 " 114 115

After dry 4072 104 116 117
4073 101 113 114

After Corrug 4072 105 108
4073 92 103 107

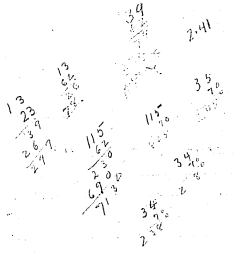
Done

4074 } Same as 4064. but with
4075 } recovered graphite dusted on
inside of cups which are to be very
slightly moist with molasses, cups
dried before filling -
319 Cake

Before scraping 4074 Centre 108 Edge 130+127
" " 4075 " 107 " 129+126

After drying 4074 112 126+130
4075 109 128+129

After Corrugating 4074 98 109+112
4075 94 109+112



Done

4076 } same as 4064. Except the
4077 } molasses which is diluted with
water 1/2 + 1/2 by weight using
the 3 grams of diluted molasses
instead of 3 grams on strong
molasses, molasses put on Nicked first
3.5 cake

Too dry donut cover good
So dry graphite breaks upon
fine + Illeni donut Cover Expan
tion about 60% Compared -

Before soaking 4076 center 99 Edge 117+117
" " 4077 " 99 " 116+121

After drying	4076	101	117+117
	4077	102	120+119
After Carrying	4076	92	104+106
	4077	93	104+106

Done

4078 } Same as 4064, but 2 Record Jug
4079 } but with diluted molasses
1/2 4 1/2 — 3 grams The
molasses put on the ~~jug~~ nickel first.
3.5 Cake

Depressed ring	4078	Center 95	Edge 115-117
" "	4079	" 100	" 119-118
Effendaqua	4078	99	115-117
	4079	104	116-119
Effen County	4078	93	106-106
	4079	94	106-108

Done

4080 } Same as 4064, except
4081 } with 3 grms
diluted molasses, and one
gram recovered graphite & one gram
fresh graphite, Recovered graphite put on
first,
3.5 Cubs

Before staking 4080 a center 98 Edge 119+118
" " 4081 " 98 " 116+120

After Drying
4080 103 119+120
4081 101 116+120

After Carrying
4080 95 108+108
4081 93 106+107

Done

4082 } Same as 4064 - Except 1½ times Soy Flour Recovered
4083 } with 3 grms dilluted molasses

~~and it [illegible]~~

3.5 Cake - Recovered portion formed Recovered, put in 1st Hi 1st with Meal Item recovered 4083 on twist of three fine graphite mat. worked very much to prevent breaking of Cakes -

Before soaking 4082 center 100 Edge 120+119
" " 4083 " 99 " 117+118

After Drying 4082 103 120+121
4083 105 118+119

After weighing 4082 96 108+108
4083 94 105+108

Done

4084 } Same as 4064 but with
4085 } Nickel all passing 60 mesh screen,

3.9 Cake

Before soaking 4084 Center 106 Edge 124+127
" " 4085 " 107 " 128+123

After Dry	4084	112	128 & 130
	4085	108	123 & 128
After Comp'y	4084	93	106 & 108
	4085	93	106 & 108

Done

4086 } Same as 4064 except nickel
4087 } all passed through 60 mesh screen and one gram recovered graphite + one gram fine graphite ~~Recovered graphite~~ put on first 3.9 Cake

Before baking 4086 ~~[illegible]~~ 106 Edge 124+124
" " 4087 " 104 " 124+126

After Drying 4086 111 125+129
4087 107 125+130

After Cooling 4086 96 108+109
4087 95 107+109

Dine

4088 } Same as 4064 - Except on
4089 } first press lay on piece of .005 Tin foil on each side of cup on first press -

and ~~after~~ Then remove foil & soak - after soak put foil on before 1st press & Corrugating. Want to leave Ends Thicker.

319 Cake

Before soaking 4088 Center 110 Edge 124+128
" " 4089 " 104 " 120+125

Ceffee Drip	4088	117	120+129
	4089	115	122+128

~~Foil~~ Sheet to one Side 4089

Ceffee Comfy	4088	95	102+109
	4089	88	104+105

Done

4090 } same as 4064 - like fine one Recipe
4091 } but do not twist the mix but only smooth by fingers like our Electric Mixer

3.9 bake

Before soaking 4090 centre 106 Edge 128 + 125
" " 4091 " 98 " 118 + 119

After Soaking 4090 114 128 + 130
4091 100 119 + 120

After Comp Tg 4090 97 110 + 110
4091 92 106 + 108

All from 4064 to 4093 are to be
evaporated in 30% H₂SO₄ at 100 Nile

from 4064 To 4093 will work up in
1 oak mess time

Sure 1 Fine & Recommend Grind

4092 } Same as 4064. Except 3 grms di Potts Muds
4093 } do not twist but work
Lake Edison 1911 x21,
3.5 Cake.

Before soaking 4092 Centrifuge 99 Edge 116 × 124
" " 4093 " 100 " 121 × 118

After Drying	4092	105	117 × 124
	4093	107	119 × 121
After Centrifuge	4092	94	105 × 117
	4093	95	107 × 110

4094	462
4095	483
4096	448
4097	455
4098	

CO

4094 Done

Rzg mix 3:2 4 pockets evenly filled
press 75 atmos corrugated 100 atmos first

	Calh per	Center	side	side
Hgt to 175° 7th		92	401	104

Put the 4 pockets on rod, immerse in KOH, so rod + washers do not go into the solution, use a Chem Pwr nick strip, no rubber or anything near the KOH, use 33% of the smallest glass possible so the minimum KOH is used

~~Charge~~ Reverse at 100 ma per pocket 15 hours, charge 200 rate 15 hours and discharge at 100 per pocket in seperate cells,

	462 to 1.1	Center	Edge
4095	483 to 1.1	89	101 + 100
4096	448 to 1.1	94	99 + 100
4097	455 to 1.1	87	97 + 99

4101	494	498	X	494

CO

4098 Same

Same as 4094.
Except does a piece of can clock
Cut to same size as the CP
Nickel strip used with 4094

4099	503 to 87 1"	= 99 x 100
4100	503 to 87 1"	= 100 x 102
4101	494 to 87 1"	= 98 x 98

4 | 2016
504

4102 Done

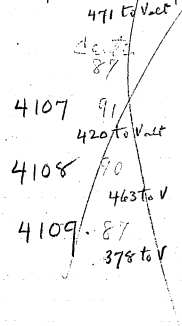
Same as 4094-
Except has His 6 in/6 battery
jar with CP nickel same
size as in small cells of
4094-

	Center	498 to V 1st	Edge
	8V		160 & 104
4103	8-6	507 to V 1st	98 & 100
4104	8-7	500 to V 1st	114 & 100
4105	8V	511 to V 1st	100 & 102

CO

Done

4106. Same as 4094.
Except reversed perforations



	1	2	3	4	5	6	7	8	9
4110	533	533	530	524	526	548	543	526	518
4111	530	524	525	520	517	550	550	527	523
4112	525	532	539	528	532	537	532	513	515
4113	530	50	527	523	526	546	548	525	520
	529.5		529	524.7	525.7	545	543.5	522.7	519

Evidently reversed perforations are good. They have always shown even runs

	11	9				66	69	69	
4113	528	380	502						
4112	515	371	502	X	6 runs	510	500	497	
4111	529	371	513	X	6 runs	512	504	S.C.	
4110	525	356	500	X	6 runs	500	493	486	50 runs on Endurance
	525.7	5							

	120	121
4112	492	467
11	504	481
10	467	447

Done

4110 Reversed perforation
312 Reg mix, 15 62
changed Reg 200 mix 15 hours
in 21% Density 100 ~~475 Tons~~
Not Reversed
Centre 88 533 to V Edge 100 × 100

4111 88 97 ÷ 99
530 to V

4112 87 97 ÷ 162
525 to V

4113. 86 97 ÷ 98
530 to V

Done

4114 A. Koxalate all night
Cup from Gibbs Gad cell.
Charge 15 hours 200 discharg 100

Center 84 Edge 99 & 99

485

4115 A B Citrate 6 hrs Dup of 4114
Charge 15 hours 200 discharg 100

Center 84 Edge 99+99

4601

4116 B Potassic Citrate only all night
Cup from Gibbs Gad cell.
Chg 15 hours 200, discharg 100

462 Center 84 Edge 100 & 101

4117 B Dup of 4116

Center 84 Edge 94 & 100

393

Done

4117 C Ammon Chloride + KOH. 1 03 all gas
Ammon Chl Cupro from Pt bbs
Good cell, chg 15 hours 200 disch 100

Centre 83 Edge 97 + 97

470

4118 C Dup of 4117

Centre 87 Edge Wire 101

468

4119 D Ammonia Chloride & ammon.
Cupro from Pt bbs Good cell all gas
Chg 15 hours 200 disch 100

Centre 87 Edge 112 102

370

4120 D Dup of 4119

Centre 88 Edge 112 + 100

369

Done

4121 E Ammon Chl 4 grms soaked all night Cup from Clubbs bad cell. Chg 15 hours 200 dischg 100

Centre 89 Edge 101 - 102

373

4122 E Dup of 4121

Centre 87 Edge 100 + 101

368

4123 F Ammon Chl 2 grms soaked all night. Cup from Clubbs bad cell. Chg 15 hours 200 dischg 100

Centre 83 Edge 93 + 94

340

Done

4124 F Dup of 4123

Centers 89 Edge 98 & 100

428 to V

4125 H - Ammonchl 4 oz alf mg RR 3 oak Cup from Gibbs 600 cash Chg 15 hours at 200 check 100

Centers 89 Edge 98 & 100

427 to V

4126 H Dup of 4125 T

Centers 89 Edge 98 & 100

346 to V

Done.

4127. I Strong sugar all night. Cup from Gibbs 6d cell, chg 15 hours 200 discg 100

Center 97 Scale 98 + 100

397

4128 I Dup of 4127

88 Scale 98 + 101

448

4129 J. Ammon Chl very concentrated Some of Chlo. green Will Offs. quieted out in 20 hours. Chg 15 hours 200 discg 100 - Cup from Gibbs 6nd Cell

Center 90 Scale 102 + 103

267

4130[J] Dup of 4129-

253

4131 K Sugar + KOH, soaked call night
Cup formulation bad cells. Chg 15 hours
200 chrg 100.

506

4132[K] Dup of 4131

Center

449

4133 L KOH + Potassic Citrate, all night, 2 Ubbs bad cell. chg 15 hours 20 b. discharg 100 -

Center [illegible]

473

4134 L Dup of 4133.

Center. [illegible]

443

4135 M. 1/2 gram KCy all night Cup from 4 Ubbs. Good ~~Cup~~. Chg 15 h at 200 discharg 100

Center [illegible]

436

Done

4136-M Dup of 4135

Centre 89 Edge 100 & 101

467

4137 N. Ammonia & Ammonia Chloride,
Considerable whitish green stuff
Came out, packed all night,
Cup from 9 p.m. 6th to 8 a.m.
Chg 15 hours 200 dosely 100.

Centre 89 Edge 98

447

4138 N Dup of 4137.

Centre 87 Edge 98-99

420

Done

4139-0 = Ammonia only. all night
Cups from 9466 bad cells.
Chg 15 hours 200 deschg 100.

403

Auth

~~4140-0 = Dup of 4139.~~

4141	335
4142	483
4143	452
4144	505
4145	354
	4129
	4254

Done

4141 – Rcq. to be revirused 15 hours in 33% aganist a piece of Can stick in large jar at 125 Fahr. 100 hrs. Soak in 21% for 3 hours then Change 15 hours dirdy 100

Center 84 Edge

4142 Dup of 4141

Center 87 Edge 100+101

4143 Dup of 4141

Center 88 Edge 100+101

4144 Dup of 4141

Center 88 Edge 98+100

4146	458
4147	523
4148	468
4149	448
4150	493
	477

2nd

4150	460
4149	387
4148	412
4147	524
4146	413

4145 Dup of 4141 — Done

Ck No 89 Page 97 + 101

4146 – Req to be reserved at 100 rate in 33% at 125° Tahn for 30 hours against a piece of Can strip, put in same jar as possible as 4141 – Then put in Cell with 21% KOH 3 hours before charge Then Chg 15 hours at 200 discha 100

Ck No 82 Page 97 + 98

4147 Dup of 4146 –

Ck No 96 Page 103 + 104

Done

4148 Dup of 4146

Center 90 Weight 101 + 103

4149 Dup of 4146

Center 88 Weight 100 + 101

4150 Dup 4146

Center 87 Weight 100 + 101

4151 Dup 4148

4156	470
4155	280
4154	378
4153	382
4152	413

Doses

4152 Reg to 62 recovered at 100 rate in 33% at 125° Heater for 60 hours against a piece of Can stock, & large glass jar. put them in same [illegible] of pounds that has 4141 & 4146 groups Then put in Cell with 21% snark 3 hours before chg & then chg 15 hours at 200 charg 100,1

Center [illegible] Edge 99 & 102

4153 Dup of 4152

Center 85 [illegible] 97 & 99

4154 Dup. of 4152

Center 88 Edge 100 & 98

	W	Orig 93 101	3rd runs 101 104
4157	346	88 102	102 101
4158	352	90½ 101½	102½ 101½
		-1½	-1.8

~~On the fourth counts with the same breaks~~
~~by~~

4155 Dup of 4152 Dime
Center 85 Edge

4156 Dup of 4152
Center Edge 101 & 10

Not cut out

4157. Just the same as group 4152 Except received underwater conditioning for 120 hours.
Center 93 Edge 101 + 104

4158 Dup of 4157
Center 88 Edge 102 & 101
3rd

Done

4159 Dup of 4157

Centric 87 Excl 99 + 101

4160 Dup of 4157

Centric 87 Excl 99 + 101

4161 Dup of 4157.

Centric 86 Excl 98 + 101

	Ev	orig cap	Cal after run	Dif.
4162	370	90 101	98 103	8
4163	405	85 102	93 101	5
4164	132	87 97	93 100	6
4165	128	86 97	90 99	4
4166	130	88 99	93 100	5
				56

If it were not for 4163 I would say it was dehydration. It may be chemical combn of impurities in KOH, at the surface of the KOH where it makes Contact with graphite, or the surface of cup is still dehydrated where there is but little graphite Contact, or some chem combn.

	1	2	3
4166	153		127
4165	160		132
4164	159		140
4163	448		975
4162	410	493	433

Done

4162 Group of 5 Regulars put together & soaked in 40% KOH 175 Fahr for 40 hours then taken out & put in 21% percent direct so as to keep as much 40% inside ~~pocket~~ as possible. Then charge 15 hours 200 discha 100

4163 Dup of 4162

4164 Dup of 4162

4165 Dup of 4162

4166 Dup of 4162

4167 Group of 5 nickels reg to 62 reversed 100 rate at 175 Take in 40% KOH in Tumblers, for 15 hours put in ~~12½ KOH~~ immersible & put in 21% then charge 15 hours 200 rate already 100 –

		Orig Cal	Bal after rem		
4167	250	86	102	88	100
4168	243	89	102	90	102
4169	226	87	100	86	98
4170	100	89	101	92	102
4171	250	85	98	85	97

June Temp 175

4167 = Group of 5 Nickels Regular Put in 40% KOH Blackened ~~put in~~ 15 hours at 175 ~~& put in 21% 15 hours~~ 200 discharge in 21% after Cups have soaked 6 hours in the 21% to even up the strength of the solution, be careful about the –

Dealer 86 Sales 102 88 100

4168 Dup of 4167

4169 Dup of 4167

4170 Dup of 4167

4171 Dup of 4167
Dealer 85 Sales 98

Not reversed

4172 Group of 5 Regs.
Jo. Gz charged in 33⅓ 15 hours
CP Nickel strip at 100, then
taken out & shaked 14 hours
in 21% & then recharge 15 hours
200 rate & clamp 100 — ½

1st Run

	tw	orig Cal	Cal from
4172	631	89 100	97 101
4173	688	87 98	97 103
4174	758	87 101	97 100
4175	700	88 102	97 101
4176	960	89 100	98 104

2nd Run

		hours
4172	502	20.3
4173	570	17.2
4174	632	16.7
4175	558	20.3
4176	339	26.3

3

4176	320
4175	530
4173	549
4172	472

Line not reversed —

4172 Group 5 Regulan Ni-Kels
in 33⅓ kept 15 hours at 175 Tab.
& charged at 200, then taken
out and put in 21% [illegible]
and then discharged at 100,
CP Nickel strip. dailes 89 [illegible] 4100

4173 Dup of 4172
Center 87 Edge [illegible] 98

4174 Dup of 4172
Center 87 Edge 97 101

4175 Dup of 4172
Center 88 Edge 100-102

4176 Drop 4172
Center [illegible] Edge [illegible] 100

4177 Group 5 Nickel's Reg -
Jo. 62 CHARGED 15 hours 175 Fahr
in 33% KOH, 200 rate in Nickel
Beaker Then put in 21% + assemble
& put in Cells 21% Bent put in
Water, - Charged 200 rate 15 hours
discharg 100 -

		Orig	Cal
4177	303	89	102
4178	674	89	103
4179	236	87	100
4180	640	88	101
4181	540	86	100
	200		
4181	460		
4180	559		
4179	200		
4178	548		
4177	237		

Done Temp 175°

4177 Group of 5 Reg Cans
Charged 15 hours in 33% in a
Nickel Beaker & Nickel clip
[illegible] put in 21% [illegible]
& charge 15 hours at 200 +
Then discharge at 100 - 21% KOH

Center 89

4178 Dup of 4177
Center

4179 Dup of 4177
Center

4180 Dup of 4187
88 Center 99+11

4181 Dup of 4187
Center 86 charge 97+200

1st

		Brig	Cal
4182	626	90	102
4183	391	86	99
4184	285	91	101
4185	440	90	103
4186	608	87	101

2nd

4186	60
4185	340
4184	208
4183	303
4182	517

Dups Temp 175

4182 Same as 4177 Except

~~Use 40% — 175 Fahr 175°~~

Change 15 hours at 200

~~Recharge 15 hours 200 at 175 Fahr~~

Recharge 15 hours 200 at 100 in 21% KOH

Center 90 Edges 101 + 102

4183 Dup of 4182

Center 86 Edges 0 & 99

4184 Dup of 4182

Center 91 Edges 100 & 101

4185 Dup of 4182

Center 90 Edges 101 + 103

4186 Dup of 4182

Center 87 Edges 97 + 101

		Orig Cal		Cal after run	
4187	417	86	101	90	102
4188	333	89	100	95	102
4189	311	86	99	87	98
4190	384	87	100	92	99
4191	258	96	102	91	100

Dime

4187 Group of 5 nickels -

Reversed in smack ~~Collector~~ Jumbles
Reversed 15 hours, 100 rate, 33⅓ agreement
CP Nickel Corp. This not a
duplication of groups 4094 to
4097 — to avoid claim of it to be
low to vault — Jump 175 plus
~~Charge~~ put thru — ROK 21%
~~total~~ ~~time~~ ~~in~~ ~~machine~~
then put in 21% of 15 hours
at 200 ± 2 ± 100
Cal 86 100 ± 101

4188 Dup of 4187
Center 89 Edge 99 + 100

4189 Dup of 4187
Center 86 Edge 99 + 99

4190 Dup of 4187
Center 87 Edge 99 + 100

4191 Dup of 4187
Center 96 Edge 100 + 100

		orig Cal	Calibration
4192	152	85 97	90 99
4193	353	88 101	94 104
4194	437	91 103	95 102
4195	419	86 99	91 101
4196	X		

Done

4192 = Group of 4 Megkels.
Reversed 33% 175 Taken in Source Cell — 100 Rate 15th Use Can strip, then put in Sep. glass each cup in ~~Test~~ Rot 21% put in Cell & Clay 15th hour 200 Blending 140 in 21% Rot Glass is to duplicate results obtained from 4098 to 4101.
Center 85 Edge 95 & 97

4193 Dup of 4192
Center 88 Edge 98 & 101

4194 Dup of 4192
Center 91 Edge 102 & 108

4195 Dup of 4192
Center 86 Edge 96 & 99

Soaked 18 hrs. in the 33% before pressing —

4199	476	457	469	509	511	496	522	x
98	478	462	492	509	512	492	520	
97	482	466	467	514	515	490	527	
96	448	420	454	467	486	487	487	
	471	451	471	495	506			

							69	70	71
4199	498	507	506	503	x	1	547	533	524
98	498	503	516	500	x		570	523	532
97	500	508	516	515	x		567	533	533
96	443	505	463	467					

		123	124
4199	99 runs on the skewer	532	500
98		538	511
97		557	529

Dip. Temp 175

4196— group 4 makeds put in 33⅓ KOH made from stick Potash — Use CP make of strip Reversed 100 rate 15 hours — 150 Falls then Put pockets ~~in 21% KOH~~ reversible in acc. chg 200 rate 15 hours dipping 100 — in 21½ KOH ~~to~~ Center 90 Edge 102 + 102

4197 Dup of 4196 Center 90 Edge 103 + 103

4198 Dup of 4196 Center 94 Edge 101 × 101

4199 Dup of 4196 Center 87 Edge 100 + 101

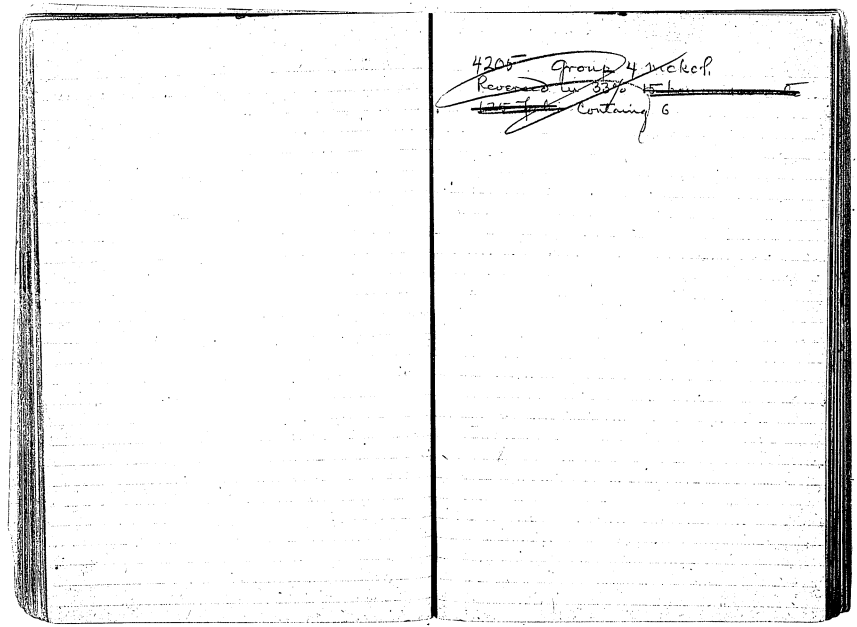
Done

4200. Groups of 4 nickels -
- Stumbler Reversed against -
a pocket containing Nickels
Reduced by Hydrofluoric mixed
84.2 graphite Use Red 33% ROH,
100 rate 15 hours 175 Volts -
~~Change~~ Thin
electrolyte in Cells 1 & 2 200
rate 15 hours discharge 100 rate
in 21% KOH Centers 89 Edges 99+102

4201 Dup of 4200
Center 88 Edges 100+102

4202 Dup of 4200
Center 84 edge 95+99

4203 Dup of 4200
Center 84 Edge 100+102


4205 Group 4 Nickel
Containing 6

1st

4204	396
4205	482
4206	431
4207	396
4208	425

5 | 21.4 / 42.8

Lens Temp 17½

4204 Group 5 nickels
Reversed 10 hours 100 rate in
our Regular tumbler, in 33%
Containing 4 grammes of
Water glass (1:2) Silicate of Soda
~~Soda~~ Isinglass ~~1.25~~ Factor-gutta 1KOH 21%
Brass nickel common acc Co +
Chg 200 15 hours rate dissolving 100 in 21%
in 21% KOH
Center 89 Edge 102 & 103

4205 Dup of 4205
Center 90 edge 103 & 104

4206 Dup of 4205
Center 87 Edge 99 & 102

4207 Dup of 4205
Center 90 edge 99 & 101

4208 - Dup of 4205,
Center 89 edge 101 & 103

	1st	2nd					
4213	638	56		503	505	479	×
4212	622	617	537	525	59	55	
4210	548	487	408	396	380	343	
4211	607	552	482	460	453	419	×
4209	703	733.	409	658	642	597	×

Summary Endurance

	61	63	64		116	117
4213	490	505	523		527	510
11	433	447	455		480	447
09	531	528	537		526	512

Summary Endurance

Done Temp 17°

4209 group 5 nickels
Changed in Tumbler Containing
33% of having 4 grammes — Temp 17°
Silicate of Soda Charge 200 rate
15 hours Return 10% 21%
Recharge 200 rate 15 hours + Recharge
100 rate in 21% KOH
Ce 89 99+ 101

4210 Dup of 4210
Center 85 Edge 96+99

4211 Dup of 4210
Center 88 Edge 98+102

4212 Dup of 4210
Center 86 Edge 100+101

4213 Dup of 4210
Center 88 Edge 100+101

4218	492	450	465
" 17	513	505	502
" 16	493	463	460
" 15	522	503	503
" 14	456	430	417

Done

4214 Group of 5 nickels.
Reversed in 33% 150 Temp
CP nickel strip 15 hours
@ 100. use a Tumbler
In the KOH, put @ 6 grams
of Bismuth Hydroxide,
Edwards will prepare it.
Afterwards change in 21% 15 hours
at 200 check 100.
Center 89 Edge 100 + 102

4215 Dup of 4215
Center 87 edge 100 & 102

4216 Dup of 4215
Center 91 edge 101 + 102

4217 Dup of 4215
Center 87 edge 98 & 99

4218 Dup of 4215
Center 88 Edge 100 + 102

	1st run	2nd	3rd
4223	502	484	
4222	507	494	
4222 3rd	516		
4221	515		508
4220	516		
4219	513		497

Dens

4219 — Group of 5 nickels Reg Mix which have been worked with a magnet to get more out Charge 15 hours 200 rate discharge 100 — 21% KOH.

Center 90 Edge 99+104

4220 Dup of 4219
Center 90 Edge 101+103

4221 Dup of 4219
Center 88 Edge 98+100

4222 Dup of 4219
Center 86 Edge 98+99

4223 Dup of 4219
Center 90 Edge 101+102

4224	638
4225	433
4226	417
4227	304
4228	590

4228	512
4227	217
4226	50
4225	333

Dens

4224 Group of 5 Rynechek received in 33% at 175 Fahr in Tumbler for 15 hours 100 rate, KOH powder at a fresh 33% put in. + Charge 15 hours 200 rate. then put 21% KOH + Assembled in Cells with 21% Chg 15 hours 200 rate Charging 100 in 21%

Center 88 Edge 98+101

4225 Dup of 4224
Center 90 Edge 100+101

4226 Dup of 4224
Center 90 Edge 103+105

4227 Dup of 4224
Center 86 Edge 98+99

4228 Dup of 4224
Center 87 Edge 99+102

4229	193	157	150	183
30	218	183	173	
31	482	427	425	432
32	587	507	520	462
33	583	527	517	516

Dirks

4229+ 9 groups of 5 Regular Nickels, heated on hot plate to 212 about and quickly transferred to hot 33% KOH in tumbler, then put in batt and tumbler kept at 150 for 15 hours Reversed against a Nickel strip CP- at 100 rate, then ~~Reverse~~ ~~Current Interrupt~~ Change KOH for fresh lot of 33 + Reverse the Current to charging at 200 rate for 15 hours, then Take out + put in 21% + assemble in Cells with 21% Sept 6 hours then Charge 15 hours at 200 + discharge 100 rate

Capt'n 10 min by watch

Center 87 Edge 96 + 98

4230 Dup of 4229
Center 85 Edge 97 + 100

4231 Dup of 4229
Center 90 Edge 102 + 105

4232 Dup of 4229
Center 88 Edge 100 + 103

4233 Dup of 4229
Center 88 Edge 100 + 101

Dare

4234 — group 5 nickels - got up to 212 on half plate and plunged into KOH, allowed to soak 24 hours with 5% + then put in 21% in cells + quicked ~~charged~~ put on charge 15 hours 200 Bate discharge 100 rate
Center 88 Edge 102 + 104

4235 Dup of 4234
Center 89 Edge 99 + 101

4236 Dup of 4234
Center 88 Edge 100 + 102

4237 Dup of 4234
Center 87 Edge 100 + 101

4238 Dup of 4234 —
Center 89 Edge 97 + 99

Done

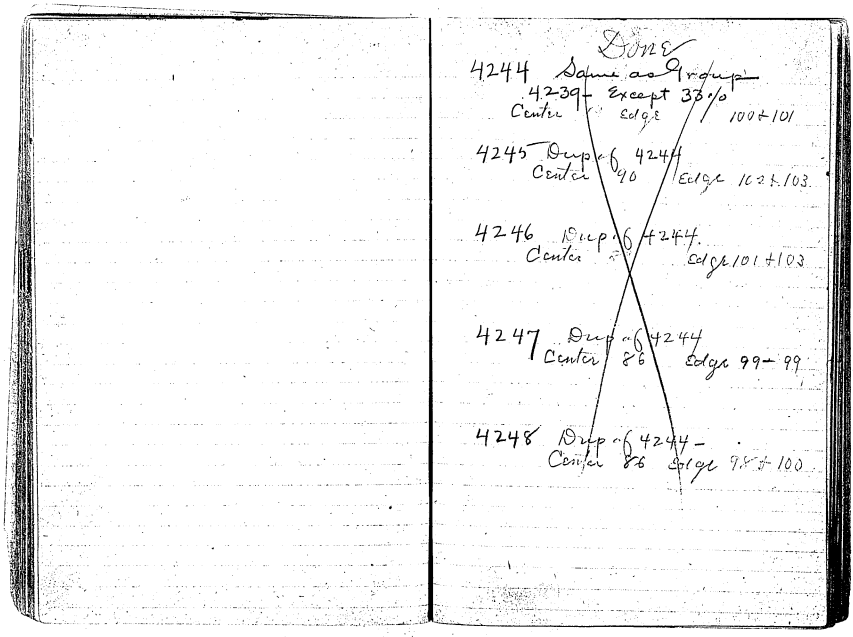
4239 Group of 5 nickels heated to 212 on hot plate & plunged quickly into 5% KOH, allowed to soak 24 hours in the 5% & then put in cells with 21% & quickly thereafter on put on a charge at 20 b rate for 1½ hours too discharge rate
Center 89 Edge 97 & 101

4240 Dup of 4239
Center 1c Edge 101 & 102

4241 Dup of 4239
Center 88 Edge 103 & 102

4242 Dup of 4239
Center 88 Edge 99 & 102

4243 Dup of 4239
Center 89 Edge 101 & 103


DONE
4244 Same as 9 rdups
4239 Except 33%
Center
Edge
100+101
4245 Dup of 4244
Center 40
Edge 102+103
4246 Dup of 4244.
Center
Edge 101+103
4247 Dup of 4244
Center 80
Edge 99-99
4248 Dup of 4244-
Center 80
Edge 99+100

4253	487	497
4252	473	507
4251	485	507
4250	475	503
4249	497	513
	4803	5027

Average temp of bottle
in which they are soaked
to 144° Fahr —

Time between taking out and put
ting in charger - 1⅓ hrs.

Dup & Mix Dried before putting in pockets, 2 hours at 220 or 230 heats up quickly used —
4249 Group of 5 Reg 424. n. mix
To 62 soaked in 33% for 24 hours
in closed big bottle on hot plate,
The 5 nickels before immersion in the
33% are to be heated 4 hours at
220 Fahr & then plunged quickly
in the 33, at end of 24 hours they
are to be Taken out of bottle
& put in 21% & assembled in Cells
note the time between taking
out of big bottle & the time they
go on charge - use words that
have been given before, don't
use new words — Charge at
200 rate 15 hours double 100 rate
Center 96 Edge 97-104

4250 Dup of 4249
Center 88 Edge 101-101
4251 " 4249
Center 91 Edge 103-102
4252 " 4249
Center 90 Edge 103-103
4253 " 4249
Center 92 Edge 105-102

4254	478	SC			492	470
4255	460	SC		462	495	470
4256	452	487	488	492	503	470
4257	456	505	506	507	511	478
4258	462	500	506	510	525	491
av	459	497.3	500	499.7	505.5	

Time between taking out of bottle and putting in clay - 14½ hrs.

5 | 2295 | 1492 / 497.3
459

1:00

V Done

4254. Same as 4249 for soaked 48 hours in big Gallon bottle with 33%

Center 93 Edge 104-104

4255 Dup of 4254
Center 93 Edge 103-104

4256 " 4254
Center 86 Edge 97-100

4257 " 4254
Center 92 Edge 104-105

4258 4254
Center 89 Edge 103-102

4263	429	442	482	500	465	506
" 62	445	479	491	512	477	503
" 61	458	483	498	511	476	500
" 60	442	473	492	501	467	
" 59	449	478	492	507	473	
	443.2	471	490	506.2		

5 | 2216 / 443.2

5 | 2451 / 490

5 | 2355 / 471

Done

4259 Same as 4249 Except soaked 72 hours in 6% Gelatin with 33%

Center 92 Edge 105 - 101

4260 Dup of 4259
Center 91 Edge 104 - 102

4261 " 4259
Center 93 Edge 106 - 103

4262 " 4259
Center 92 Edge 104 - 104

4263 " 4259
Center 90 edge 103 - 102

Time between Tablings out of bottle and Specimens on Stage - 38 hrs.

4264	382	460	485	485	446	472	490
65	412	488	457	508	464	511	515
66	385	442	473	492	441	483	487
67	402	1423	480	498	458	505	510
68	319	1135	462	487	446	494	498
	380	463	475	494		493	500

			2nd Sum			6m17		
			4264	97-100		89	102
			65	100-104		91	104
			66	98-102		86	103
			67	97-104		89	104
			68	95-103		87	99
	62	64	65			117	118
4266	547	546	522	Same as Summer		532	505
65	590	562	548		Same as Summer	583	517
64	547	530	523			530	505

Dens

4264 Same as 4249 Except soaked in big bottle 96 hours in 33%
Center 89 Edge 102-97

4265 Dup of 4265
Center 91 Edge 104-104

4266 " 4265
Center 88 Edge 103-101

4267 " 4265
Center 89 Edge 104-102

4268 " 4265
Center 87 Edge 99-99

Time Richmond relaxing out of bottle and put in new charge — 33 hrs.

4269	55	458	489	506	487	504
4270	57	463	492	505		504
71	62	450	492	500	495	502
72	67	450	489	497	477	499
73	66	463	485	499	475	471
	5944					

Cells used by Warren for special experiments — about 12 hrs. Then ran regular again as follows, —

After Warren got through put them on test

4273	508	492	
72	512	500	
71	514	500	
70	492	486	
69	516	511	

Dark

4269 Same as 4249 except Soaked in big Gallie 120 hours in 33%

Center 94 Edge 102 - 104

4270 Dup of 4270
Center 92 Edge 104 101

4271 " 4270
Center 91 Edge 103 - 102

4272 " 4270
Center 95 Edge 105 - 104

4273 " 4270
Center 91 Edge 104 - 102

4278		216
4277	144	245
4276	175	253
4275	136	210
4274	153	263
	152 av.	97

Average small 2nd run 11.2 Center 3.8 Edge

60.
92.
93.
102.
120.

Time between taking out of bottle and putting on charge - 5 hrs.

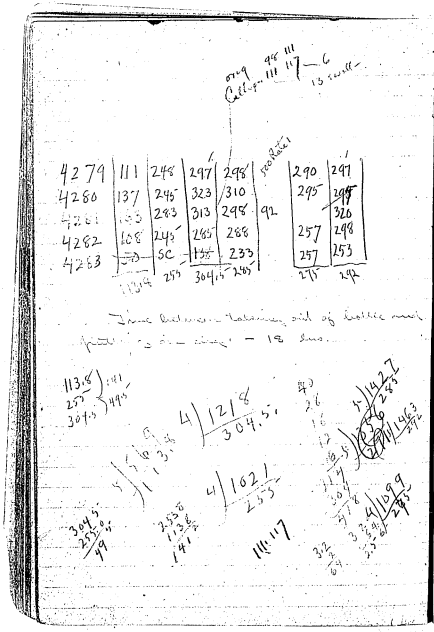
~~4275~~ Group of 5 mixed
mixed ~~dried~~ 2 hours at 220 or ~~about~~ that
+ quickly

Omit

4274 Group 5 nickels made with Green nickel no graphite, crushed 16 gauge 30 mesh + dried at ~~about~~ 220 Fahr 2 hours Then quickly made into pockets and pockets heated 4 hours at about 220 Fahr + quickly plunged into 6" Bottle Containing 33% KOH, and put on hot plate They are to Remain in bag bottle 24 hours, + removed + put on cells with old flow with 21% + Charged 15 hours 200 rate + discharg. 100 rate

Center 98 Edge 112 + 113

4275 Group 5 4275
Center 97 Edge 109 + 110
4276 " "
Center 100 Edge 112 + 113
4277 " "
Center 100 Edge 111 & 115
4278 " "
Center 97 Edge 110 + 113



Done

4279 Same as 4275 except soaked 48 hours in bq. Gentle, in 33%

Center 99 Edge 110 + 114

4280 Dep of 4280
Center 106 Edge 112 + 112

4281 " 4280
Center 98 Edge [illegible] 114

4282 " 4280
Center 98 Edge 110 + 112

4283 " 4280
Center 103 Edge 115 + 116

Put in formalin (5%)

4284	91	197	203	234	234
4285	121	248	260	266	266
4286	130	240	243	257	257
4287	144	256	283	280	294
4288	127	259	283	280	300
					271

Time between taking out of boiler and putting on drying - 18 hrs.

V Done

4284 Same as 4275 except. Soaked for 72 hours in brine Gentle with 33% Center 100 Edge 112 & 115

4285 Dup of 4285 Center 100 Edge 113 - 112

4286 " " Center 95 Edge 107 - 110

4287 " " Center 101 Edge 110 - 114

4288 " " Center 99 Edge 114 - 110

Time between taking off of bottle and putting on clamp — 42 sec.

4289	38	2nd	220	272	295
90	31		164	238	215
91	45	Nothing	191	248	253
92	43		196	247	237
93	47		196	250	50
					234

4/9/36
2:54

✓ Done

4289 Same as 4275 except soaked 96 hours in Big Bear 1000 with 33⅓%
Center 97 Edge 114 - 113

4290 Dupe of 4290
Center 102 Edge 116 - 115

4291 " "
Center 101 Edge 115 - 115

4292 " "
Center 101 Edge 111 - 115

4293 " "
Center 102 Edge 15 - 116

Same instrument taking unit of bottle and spelling one change - 42 dens.

4294
95
96
97
98

4294
4293

4294
95
96
97
98
Adjustmentable dropped immediately

4297	96	201	248	258	262
96	88	232	260	270	267
95	116	203	234	242	242
94	136	232	247	257	257
"	~~96~~ 146	220	247	~~258~~ 253	

296

1-12-41
256

Dens

4294 Same as 4275. Except soaked in bq 62 CCCa 120 hours
Center 102 Edge 117 - 115

4296 Comp of 4295
Center 103 Edge 115 - 116

4296 " "
Center 104 Edge 115 - 117

4297 " "
Center 102 Edge 114 - 116

4298 " "
Center 103 Edge 116 - 115

4299	103	
4300	147	1st Run
4301	163	
4302	87	
4303	67	
	113.4	

2.

4303	503	
4302	507	
4301	495	2nd Run
4300	505	
4299	512	
	504.4	

3

4299	519	
4300	515	3rd
4301	495	
4302	520	
4303	510	
	512.4	

Done

4299 Group of 5 nickels
The nickel mix being ~~weighed~~ to about 225 Taks before use in pockets
~~The pockets each~~ for 2 hours,
Then pockets heated 4 hours at 225
~~and put in One per cent Potash~~
~~solution~~ Each pocket put in little Cell containing One per cent potash and charged 15 hours 200 rate discharge 100 rate, ~~The~~ The Second Run up to 6% in 21% KOH.
Chg 15 hours 200 rate discharg 100 rate, Before running in 21% let them Soak 2 hrs
Center 91 Edge 105 - 104

4300 Group of 4299
Center 91 Edge 103 - 102

4301 " "
Center 88 Edge 100 - 101

4302 " "
Center 93 Edge 104 - 104

4303 " "
Center 95 Edge 102 - 103

~~4304~~ ~~277~~ Stacks

4305	279
4306	275
4307	270
4308	275
	2741.2

4308	505
4307	482
4306	497
4305	503
	496.7

4304	507
4305	518
4306	513
4307	518
4308	524
	516.4

4304 Done
Same as 4299
Except first run in Two
per cent KOH + 2nd run in
21% —
Center 93 Edge 105-103

4305 Dup of 4304
Center 91 Edge 105-102

4306 " "
Center 96 Edge 96-104

4307 " "
Center 87 Edge 98-100

4308 " "
Center 89 Edge 101-103

	to V
4309	383
4310	389
4311	350
4312	387
4313	388
	379.4

4313	505
4312	507
4311	510
4310	497
4309	502
	504.2

4309	520
4310	527
4311	500
4312	519
4313	527
	518

Done

4309 Same as 4299 - Except first run in Four per cent KOH. 2nd run in 21% Center 94 Edge 101 - 104

4310 Dup of 4309 Center 95 Edge 105 - 103

4311 " " Center 93 Edge 101 - 106

4312 " " Center 95 Edge 103 - 106

4313 " " Center 92 Edge 105 - 101

	to V
4314	467
4315	457
4316	487
4317	443
4318	459
	448.6

4318	507
4317	500
4316	497
4315	492
4314	512
	501.6

4314	520
4315	527
4316	513
4317	527
4318	525
	522.6

Done

4314 Same as 4299
Except 1st run in EIGHT
per cent KOH, 2nd run in 21%
Center 90 Edge 102 / 102

4315 Deep of 4314
Center 99 Edge 103 - 100

4316 " "
Center 90 Edge 100 - 100

4317 " "
Center 90 edge 105 - 102

4318 " "
Center 100 Edge 104 - 104

	to V
4319	498
4320	497
4321	492
4322	483
4323	482
	490

4323	507
4322	504
4321	507
4320	523
4319	525
	573.0

4319	525
4320	523
4321	517
4322	519
4323	425
	501

Dens

4319 Same as 4299 Except 1st run in SIXTEEN per cent ROH, 2nd run 21% Centre 93 Edge 105 - 104

4320 Dupe of 4319
Centre 91 Edge 104 - 104

4321 " "
Centre 90 Edge 103 - 103

4322 " "
Centre 93 Edge 108 - 107

4323 " "
Centre 90 Edge 104 - 102

	V
4324	437
4325	467
4326	451
4327	480
4328	480
	463

2nd

4328	515
4327	507
4326	472
4325	502
4324	467
	49216

4324	465
4325	489
4326	477
4327	510
4328	513
	490

One

4329 – Group 5 nickels. ~~Was~~ Heated on hot plate one hour ~~&~~ then immersed quickly in 33% and Charged ~~&~~ 15 hours 150 Amps in tumbler 100 rate. CP middling Then put in cells with 21% allowed to soak 6 hours & then charged 15 hours 200 rate discharg 100

Center 98

4330 Dup of 4329

91

4331 " 4329

91

4332 " 4329

Center 91

4333 " 4329

Center 87

4338	693	560	5
37	697	578	562
36	696	592	572
35	680	583	566
34	690	590	563

Doris

4334 Same as 4329 Except The nickels are immersed in the 33% very slowly Take about one minute to pass them down into liquid so all air can get out, [illegible]

4335 Dup of 4334

4336 " "

4337 " "

4338 " "

4343	677	572	562	553
42	665	563		577
41	667	562		2nd
40	673	558	565	550
39	667	562	565	548

CO

Dn 1

4339 - Group 5 nickels, only give the pockets, 50 atmos pressure with smooth disc. Then heat on hot plate one hours & very slowly lower them into water. Let them stay in water 3 hours then dry for one hour on hot plate (then press up to 100 tons for 10 minutes) then commence slowly on 330% — Run Charge on Number experiment: CP nickel strip 15 hours 100 rate 150° deg — Then put in 21% for 6 hours — Charge 15 hours 200 rate discharge 100 rate

Ends 88 Edges 110 + 111
95 104 + 105

4340 Dup of 4339

Center 91 Edges 111 + 112
94 103 + 104

4341 " "

Center 87 Edges 108 + 108
94 105 + 107

4342 " "

Center 89 Edges 109 + 110
100 108 + 107

4343 " "

Center 92 Edges 112 + 113
93 103 + 104

Final runs

4348	669	569	538
47	669	565	555
46	673	575	558
45	677	575	550
44	667	567	555

Dec 2.

4344 - 5 nickels made from mix which has been put in an Evaporating dish and packed down or just enough water put on to wet it but not to float it, or show any water on top then dry the mix thoroughly & make into packets regular Judy, heat on hot plate & slowly increase to 33% ~~of Charging~~ on Jumbker 150° for 15 hours against C.P. Nickel str. up 100 rate. Then put in 21% soak 6 hours & chg 200 rate always 100 rate

Cinder [illegible]

4345 Dup of 4344

Cinder [illegible]

4346 " "

Cinder 95 [illegible]

4347 " "

Cinder 8[illegible]

4348 " "

Cinder 91 Edge 102 & 104

4353	643	547	547	542
4352	633	557	553	550
4351	640	557	550	542
4350	633	548	553	546
4349	633	562	543	540

4349

4348 - Group of 5 nickels put in 33% Regular wax Rue Tumbler, ~~Change~~ adjust a platenium wire or clip 15 hours at 100 - 150 Tahoe, then Soak 6 hours 21% ~~Rinse~~ Chg 15 hours 200 dksch 100 -

4350 Dup of 4349

4351 " "

4352 " "

4353 "

4358	643	560	545	549	542					479
4357	643	562	553	547	545	523	535		525	
56	650	553	555	547	545	501	535		518	
55	643	548	547	542	545	507	532		525	
54	633	547	546	546	545	507	532		525	

4358 – Ozite to Vulcanize for several exp.

4358	513	520	520	Sq. Inch	62	64	65	Sq. Inch			117	118
56	518	520	X		590	562	547			540	518	
55	513	517	X		593	562	547			557	507	
54	513	520	X		607	562	549			566	533	

4354. Gramp 5 Nickels Put in 32 Reg wire in Chamber Charging 15 Hours 100 150 Fahr against CP Nickel Cent do not Use any rubber use glass to support the Ni Strip. Then Put in 21½ Soak 6 hours & then chg 200 volts dwchy 100 –

Cond. 41 Diff. 109 = 109

4355 Dup of 4354

Cond. 41 Diff. 109 = 109

4356 " "

Cond. 42 Diff. 108 = 109

4357 " "

Cond. 41 Diff. 108 = 109

4358. " "

Cond. 41 Diff. 108 = 109

4363	505	508	513	520	508	503
62	502	505	513	516	500	502
61	570	540	515	533	SC	SC
60	590	543	531	539	523	520
59	508	505	513	516	495	490

4363	507			60	62	63		115	116
62	503								
61	530	x	Scanned	547	531	522		523	485
60	530	x		553	546	532	60 mm on Endurance	537	518
59	508	x		588	545	522		533	500

Dme

4359. 5 Reg nickels press at 50 cubicon heat on heat plate lower unto 33% very slowly. Then ~~allow~~ allow them to Soak in 33% for 6 hours then assemble unto cells with 33% CHARGE 15 hours 100 rate at 150 Tahi, then disconnect all the nickels & soak in large jar water for 10 hours then drain on hot plate 3 hours at 125 Tahi Smooth press 100 Corrugate ~~1/2~~ 1/4 then assemble in Cells and Charge again at 200 rate for 15 hours slowly 100 rate.

Center 89 edge 110 + 111

4360 Dup of 4359

Center 89 edge 110 + 111

4361 " "

Center 89 edge 110 + 111

4362 " "

Center 89 edge 110 + 111

4363 " "

Center 89 edge 110 + 111

4364	150	228
65	168	233
66	153	216
67	175	228
68	153	226

Dme

4364 = 5 Reg nickels recovered in 33% 15 hours 100 rate 150 7 hrs.
The solution having 3 grammes of Metallic Calcium put in it it will dissolve — then charge in 21% 15 hours at 200 dissolving 100 -

4365 Dupe of 4364
Center 11 Color 104 + 105

4366 " "
Center 94 Color 102 + 103

4367 " "
Center 94 Color 102 + 102

4368 " "
Center 91 Color 102 + 103

4369	397	380	377	394
70	485	462	476	475
71	388	391	407	400
72	478	457	472	465
73	472	445	460	458
	440	427	438	4362

CO

4369 ~~5 Nickels Req put in 33% and change to 15 hours at 100 rate then change 33% & put in 21% — let it soak 12 to 15 hours +/1~~

4369- Group 5 Nickels put in 33% & change in the Cabel 15 hours at 100 rate then pour out 33% & Substitute 21% Let it rest for 6, hours then Change 15 hours 200 deschy 100 rate ~~Use~~ CP Nickel Strip & tumbler when chg in 33% —

4370 Dup of 4369

4371 " "
Center 87 Edge "

4372 " "
Center 92 Edge "

4373 " "
Center 90 Edge 101 + 102

4374	325	277	257	257	267	215	232
77	693	555	534	534	544	525	530
76	618	517	504	510	515	497	513
75	594	409	515	518	525	513	487
74	585	473	461	483	485	475	483

4378	228	205	212	202
77	525	525	542	512
76	492	497	518	493
75	507	500	520	495
74	462	480	475	465

4374 Group 5 Reg Nickels
CHARGED in 21% 100 rate 15 hours at 150° Fahr against CP Nickel strip then charge in Cond 21% KOH against Nickel strip 15 hours 200 rate, then assemble with irons which have been charged 24 hours 200 rate in 21% at 150° Fahr. After assembling discharge at 100 rate
Center 5 Edge 102 + 104

4375 Dup of 4374
Center 89 Edge 99 + 101

4376 " "
Center 88 Edge 100 + 102

4377 " "
Center 87 Edge 100 + 101

4378 " "
Center 87 Edge 97 + 99

4383	610	528	496	527	381	521
82	520	590	391	397	240	372
81	552	491	463	485	339	453
80	SC	452				
79	608	525	488	517	367	508

4383	517
82	367
81	450
80	[illegible]
79	503

Done

4379 Group of 5 R29 Nickels
CHARGED at 100 rate at 150° Fahr. for 15 hours against CP Nickel strip in 21% KOH
Then assemble with irons which have been Charged 24 hours 200 rate 150° Fahr.
Then the cell is to have a further charge of 15 hours 200 rate + discharg 100
Center [illegible] 100

4380 Dup of 4379
Center 88 [illegible] 101 & 102

4381 " "
Center 88 [illegible] 100 & 102

4382 " "
Center 88 [illegible] 99 & 102

4383 " "
Center 89 [illegible] 101 & 103

	1	2	3	4	5	6	7
4388	395	518	515	497	488	507	488
4387	413	553	525	263	497	521	510
86	418	553	547	217	491	520	50
85	443	605	567	545	540	546	535
84	275	273	267	250	247	258	273

4388	493	508	521	500		64	66	67
87	515	514	521	513		552	530	527
86	494	510	509	510		538	533	522
85	538	554	558	547		563	543	527
84	215	226	224	215				

Charged 24 hours at 21½ at 150° Fahr. at 200 rate

Examined under Microscope and all seemed to be O.K. and all showed clear edge of Rubber

Took this apart cleaned it sharpened Edge of Rubber to prevent sledging of grains of this is Caused then put it again.

	11.9	12.0
4387	543	518
86	543	524
85	537	517

Done

4384 Group of 5 Rzg Nickels CHARGED in 38% 150° Fahr against CP Nickel strip for 15 hours 100 rate. Then assemble with irons which have been charged 24 hours in 21½ at 150° Fahr at 200 rate — The cell after assembling is to be discharged at 100 rate without any further Charging

Center 89 Edge 100 + 101

4385 Dup of 4384

Center 90 Edge 102 + 103

4386 " "

Center 89 Edge 101 + 103

4387 " "

Center 86 Edge 99 + 99

4388 " "

Center 86 Edge 98 + 100

	1	2	3	4	5	6	7
4393	583	553	540		553		523
4392	550	548	530	524		532	
91	550	554	525	525		533	
90	585	555	528	528		368	
89	580		483	479		365	

						61	63	64	
4393	8								
92	531	527	525						
91	532	529	527	x	5 minutes	594	553	547	30 minutes
90	527	532	532	x	5 minutes	606	553	547	30 minutes
89				x	5 minutes	563	546	524	

	116	117
4391	555	525
90	550	525
89	544	513

4389 Group of 5 nickels CHARGED in 33% at 150° Fahr for 15 hours at 100 rate, Then put in Cold 21% soak 10 hours then discharge against CP Nickel strip 15 hours more 200 rate. Then assembled with irons which have been CHARGED in 21% 150 Fahr, 24 hours 200 rate — After assembling discharge at 100 rate,

4390 Dup of 4389

4391 " " "

4392 " "

4393 " "

4398	573	542	532			504	524	510			
97	550	533	527			537	521	510			
96	517	542	530			549	527	522			
95	533	543	530			552	527	522			
94	548	543	532			551	530	517			
	544	546	530			545	525	516			

	59	61	62			114	115				
4396	570	527	515			522	508				
95	573	543	522			522	495				
94	573	543	520			525	498				

52 numbers on Ends

52 numbers on Endurance

4394 Same as 4389
But with reversed perforations
Cards 92 Edge [illegible]

4395 Dup of 4394
Cards [illegible] Edge [illegible]

4396 " "
Cards [illegible] Edge [illegible]

4397 " "
Cards [illegible] Edge [illegible]

4398 " "
Cards [illegible] Edge [illegible]

4403	632	530	520	501
02	640	533	524	507
01	635	533	529	512
4400	630	533	528	508
4399	645	542	532	509
	6366			

V

4399 GROUP of 5 Reg Nickels
To 62 put in 33⅓ and soaked 2 hours
The put on a reverse current of 5 amperes for 10 seconds Then CHARGE
in the 33⅓ 150 Fahr 100 rate for 15 hours - put with regular vicus +
Charge 200 rate 15 hours + discharge 100

4400 Drop of 4399

4401 " "

4402 " "

4403 " "

4408	612	605	408 ?	533	559	583	
07	612	613	582	550	566	574	
06	612	605	567	545	552	555	
05	542	612	567	553	567	571	
04	622	573	558	556	548	554	
	1.20	605.6	358	448	554.4	567.6	

4408	561	543			60	62	63		115	116
7	560	3475								
6	540	550	x		540	515	518		483	472
5	535	563	x		540	530	550		440	453
4	527	558	x		537	512	522		467	467
	1.20	5								

5 runs on Each

Reduction

4404. Group of 5 nickels, made Dry mix – use the Green Nickel and powder in agate Mortar very fine Then roll without water 8+2 of the graphite use one part recovered & one part Coarse ~~Use the mix~~ Use cups with Reversed perforations. 3.2 .

CHARGE against Nickel strip in 38% 15 hours 100 rate 150° Fahr Then put in 21% KOH & soak 10 hours Then charge again 15 hours against a nickel strip. 200 rate & assemble with irons which have been charged 24 hours 200 rate in 21% 150° Fahr & discharg 100 rate

Center 100. Edge 110 & 111

4405 Dup of 4404

Center 96 Edge 106 & 104

4406 " "

Center 96 Edge 107. & 107

4407 "

Center 98 Edge 108 & 109

4408 "

Center 96 Edge 107. & 107

...72 — Charged this group against a C.P. strip and assembled with cigaret ...es.

4413	422	458	467	SC
[illegible]	372	462	462	471
11	419	470	463	475
10	432	465	476	467
4409	440		465	450
	411	464		

4409 Group 5 pockets taken from a grid of Gibbs cells put in Little Giants and reverse 10 hours in cold 21% Then before taking out, give the 5 pockets 10 amperes each for 10 seconds or 50 amp for the lot, then soak in 21% fresh KOH 10 hours — Chg 15 hours 200 rate of discharg 100 rate —

Center 92 + [illegible] 101 + 101

4410 Duplex of 4409

Center 87 [illegible] 97 + 102

4411 " "

Center 94 [illegible] 100 + 102

4412 " "

Center 87 [illegible] 100 + 100

4413 " "

Center 87 [illegible] 98 + 98

Note – When recorrugated the discs did not fail the same as first time on 4415 + 18 – That is the depressions came on the electrodes made by the first corrugating press.

* 4418	597	589	527	528	532	525	527
17	583	517	524	533	534	532	533
16	598	519	532	533	539	533	531
15	587	513	528		532	522	525
14	597	520	527	537	542	532	533
	592.4	515.6	528	532.6	537.4	524	526.6

4416	15 Seconds	557	545	521	50 Minutes Cook	505	496
15		570	516	508		508	473
14		574	534	521		522	485

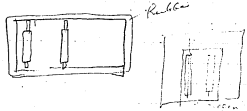
4414 Group 5 nickels put in Processed perforation cups soaked 24 hours in 33 at 150 Fahr, then put in large jar with water only soaked 12 hours then put on porcelain & dried on hot plate after charging Recorrugate all 5 times.

Run Charging in 38% against CP nickel strip 15 hours at 100 rate 150 Fahr. Then soak in 21% 10 hours & assemble in cells with discs that have been charged 24 hours at 200 rate after assembling Charge in 21% 15 hours 200 rate & discharge 100 rate.

Center 99 Edge 99 100 + 105
4415 Group 4414
Center 91 Edge 99 102 + 105

4416 " " " "
" 91 " " 102 + 103
4417 " " " "
Center 93 " Edge 102 + 106
4418 " " " "
Center 98 Edge 104 + 105
Small edges – 94 101 + 102

Drop of Voltage by putting 72 + Ni pockets different distances apart,



1 1/4 apart	1.113 Volts	
1 "	1.127 "	
3/4 "	1.136 "	21% Solution -
1/2 "	1.143 "	
1/4	1.157 "	

discharg 200 Milamp

This expmt to be tried over again -

Nov 30 1904

As the difficulty of Charging iron increase with the Cold - so that in very cold it will not charge at all - This is probably due to fact that decomposition of Water in KOH, is not affected near so much by cold as the reduction of O from Iron hence in Cold weather we get hydrogen by action of K ion instead of K ion reducing the iron. Conversely the reducing power of K ion upon iron should increase with the temp in a greater ratio than for water, Therefore economy of Charging + Watt efficiency of Cell should increase with heat, if this is correct any resistance in liquid which would heat Cell might be compensated for by increased economy + therefore get same or even better Watt efficiency Have Warren test this + run Watt efficiency at various temps on Chg + Constant temp on discharge -

Took 5 cups that have been run several times, + then 2 holes cut in bottom + put on heavy Current to grow the mix out —

	Original Cultures		After running			Free of Mix		
4229	87	96-98	95	101-97		88	96-98	
4230	85	97-100	95	98	101	86	100	96
4231	90	102	105	101	104	107	83	105 103
4232	88	100	103	95	101	104	89	99 102
4233	88	100	101	99	102-101		91	100 100
	87.6	100.2		97.6	101.6		87.4	99.9

Center Swell 10- final .2 Minus
Edge 1.2. final .3 minus —